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## TWO NEW PISIDIA.

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Pl. II, Figs. 1-13.

*Pisidium cruciatum*, n. sp. Figs. 1-6, 13, 13a.

Shell minute, inequipartite, oblique, subtriangular in outline, high, ventricose, regularly and comparatively coarsely striated, straw colored; anterior part moderately long with an oblique, nearly straight edge above and the end rounded; posterior part short, the end somewhat obliquely truncate, superior margin rather strongly curved, scutum scarcely, scutellum little marked, the latter forming a rather distinct angle; inferior part moderately curved; beaks prominent, each with two ridges diverging at nearly right angles, together forming a cross on the upper aspect of the shell, each of the ridges ending in a nodule of which the posterior is larger and more prominent; navel rather thick, whitish; hinge very stout, list strong; cardinal teeth rather large, and strongly projecting inward from the hinge list; in the right valve one, strongly curved, posterior part thick, anterior thin, lamellar, the ends united by a lamella so as to form a deep groove into which the posterior tooth of the left valve articulates; in the left valve two, the posterior (inferior) stout, massive, the other, superior and a little anterior, rather short, fine, lamellar, oblique, little curved; lateral teeth large, high and pointed in the left, strongly projecting inward in

the right valve, the latter with no (or only traces of) outer teeth, and a deep groove; between the cardinal and the lateral teeth the hingelist is rather deeply excavated, so that all teeth are markedly isolated; muscle insertions visible; ligament, short, strong.

Size; long 1.9, alt. 1.9, diam. 1.4 mill.

Soft parts slightly yellowish.

Habitat: Tuscarawas River, at New Philadelphia, Ohio.

Figure 1 represents an adult specimen, 2 the posterior, 3 the dorsal aspect, 4-6 a young example, 0.8 mill. long; fig. 13 the hinge; 13a the dorsal aspect of the right cardinal tooth with an indentation; figs. 1-6: scale  $15\times 1$ .

The singular shape of the umbones is so characteristic that this species will be recognized at once, and cannot be mistaken for any other. And also in the formation of the hinge it is quite unlike any other *Pisidium*, so that it holds a peculiar position in the genus. In the hinge structure it is very illustrative and instructive for the understanding of the different forms of cardinal teeth; yet this is not the place to discuss the subject at length.

Our species is rather variable, even so that all specimens from one place in the river are different in size and shape from those of another place scarcely half a mile distant. It measures from 1.6 to 2.1 mill. (One specimen 2.1:2.1:1.6, another 1.7:1.7:1.3 mill.), 1.9 being about the average; the margins may be rather obtuse or somewhat acute, the beaks more or less prominent, and the anterior nodule more or less marked. As a rule there are no outer lateral teeth in the right valve, yet traces of them may be seen in some specimens. Also in the formation of the cardinal teeth there is some variation, as the one in the right valve may be indented in its middle, at the angle, and so there are apparently two teeth (fig. 13a).

*Pis. cruciatum* is not rare in the Tuscarawas River, where, so far, it has only been found, but probably it has a wider distribution, and may even have been collected and taken for the young of some other species, owing to its minute size. In October and November, 1891, it was first found, and some specimens were sent to several conchologists, so to Mr. E. W. Roper, who also recognized it as a new species. In 1893 and 1894 about a hundred were collected, in all stages of growth. Only few of them are quite mature, and almost globular, most adolescent, and, though apparently old, much less inflated. They live in mud among aquatic plants and dead leaves,

and, as a rule, are covered with a black or brown coat, sometimes so thick that they appear to be globules of dirt, and only a sharp eye may recognize them from the hair-like free line along the edge. Some old specimens are badly eroded.

*Pisidium punctatum*, n. sp. Figs. 7-12.

Shell minute, inequipartite, high, oblique, strongly ventricose, almost globular, regularly and sharply striated, microscopically rugulose, whitish; anterior part moderately long, the edge above oblique, almost straight, end slightly angled, rather inferior; anterior part short, truncate, slightly angular above, rounded below; superior and inferior margins moderately curved, the former rather short, the latter long; scutum little, scutellum moderately marked, both forming slight angles; vertical section heart-shaped, horizontal, short, lanceolate-rhombic; margins very slightly acute; beaks moderately full and prominent, with a longitudinal, slightly oblique ridge (sometimes obsolete) below the culmination; navel moderately thick, whitish, with crowded, small pits, from which it appears as if dotted; hinge moderately strong; cardinal teeth fine, in the left valve two, lamellar, longitudinal, about equally long, a little curved, almost parallel, the upper little anterior; in the right valve one, longitudinal, little curved, lamellar, the posterior end slightly thickened; lateral teeth rather small and thin, in the left valve one, pointed, in the right valve two, the outer quite small; hinge-list fine, rather regularly formed; ligament rather long and fine.

Size; long 1.8, alt. 1.6, diam. 1.3 mill.

Soft parts colorless, rest whitish.

Habitat: Ohio; Tuscarawas River, Bear Run, tributary to the Mahoning River, Portage Co., a spring brook at Rootstown Station, Portage Co., emptying into the Cuyahoga River (Lake Erie and St. Lawrence drainage); in all places collected by the writer.

Figures 7-9 represent an adult, 10 a young specimen, scale  $15\times 1$ ; fig. 11 the hinge, 11a the dorsal aspect of the cardinal teeth in the left valve; fig. 12 shows a remarkable abnormality of the cardinal tooth in the right valve.

This species resembles somewhat *Pis. compressum* Prime, in having a ridge or appendage, but not in the same place, as it stands on the outside, below the culmination of the beaks, while in the mature *P. compressum* it has its place rather on top. The shape of the shell is different, and the size is very much smaller, its bulk being only about one-tenth of that shell. And while the upper part of

the posterior margin in *P. compressum* is rounded or flattened, it is sharp, somewhat "pinched" in *P. punctatum*. In this the shell is purely whitish, or light straw colored, the latter more so when dry, while the mature *P. compressum* is always more or less grayish. A marked feature is the finely and densely pitted interior surface of the shell, the dots being distinctly perceptible through the shell from the outside. Yet this is not unique, as I have also seen it in other *Pisidia*. Some specimens show not a trace of the appendages on the beaks, yet they are evidently identical.

In the Tuscarawas River this *Pisidium* appears to be rare, as only thirty were taken, twelve of them in one place, in company of about five hundred *P. compressum*, most of the latter quite young to half grown, *P. cruciatum* and a few *P. abditum*, which is common in pools and ditches. More frequent it is in the Bear Run, where about 120 were collected, but only one-fourth of them adult. Those from the spring brook mentioned above, are somewhat larger, averaging 2.0 millimeters long.

These two well characterized and very small *Pisidia* are a valuable addition to our molluscan fauna. Besides them there are several other undescribed species from our country at hand. These small mussels have been somewhat neglected and a more assiduous collecting and closer study will doubtless bring to light not only more unknown forms, but also interesting geographical relations.

New Philadelphia, Ohio, Nov., 1894.

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#### HAMINEA VIRESCENS. (Pl. II, fig. 15).

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BY MRS. M. F. BRADSHAW.

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One afternoon in August, when the low tide of the month occurred, we went to our favorite reef of rocks to see what of interest new or old we could find.

There were acres of mussels with *Purpura saricola* in great numbers and various colors wedged in between them. These *Purpuras* are graceful in form and often beautifully colored and striped, and I never tire of them. There were several species of *Acmaea* and *Fissurella volcano* plentiful enough, and as we reached the outside of the reef where the waves dashed at us threateningly, we found a few small *Haliotis cracherodii*, some sea urchins and starfish. These